

**Abstract**

5 The invention relates to a process for carrying out a high-temperature reaction, in which starting materials are supplied to a reaction chamber (4) through channels (2) of a burner block (3), where in the reaction chamber (4) the high-temperature reaction having a short residence time takes place at a temperature of at least 1500°C and the reaction mixture is subsequently rapidly cooled in a quench area (5). The cooling takes place first as a direct  
10 cooling to a temperature in the range from 650°C to 1200°C by supply of an evaporating quench medium and subsequently as an indirect cooling in a heat exchanger.

(Figure 1)

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